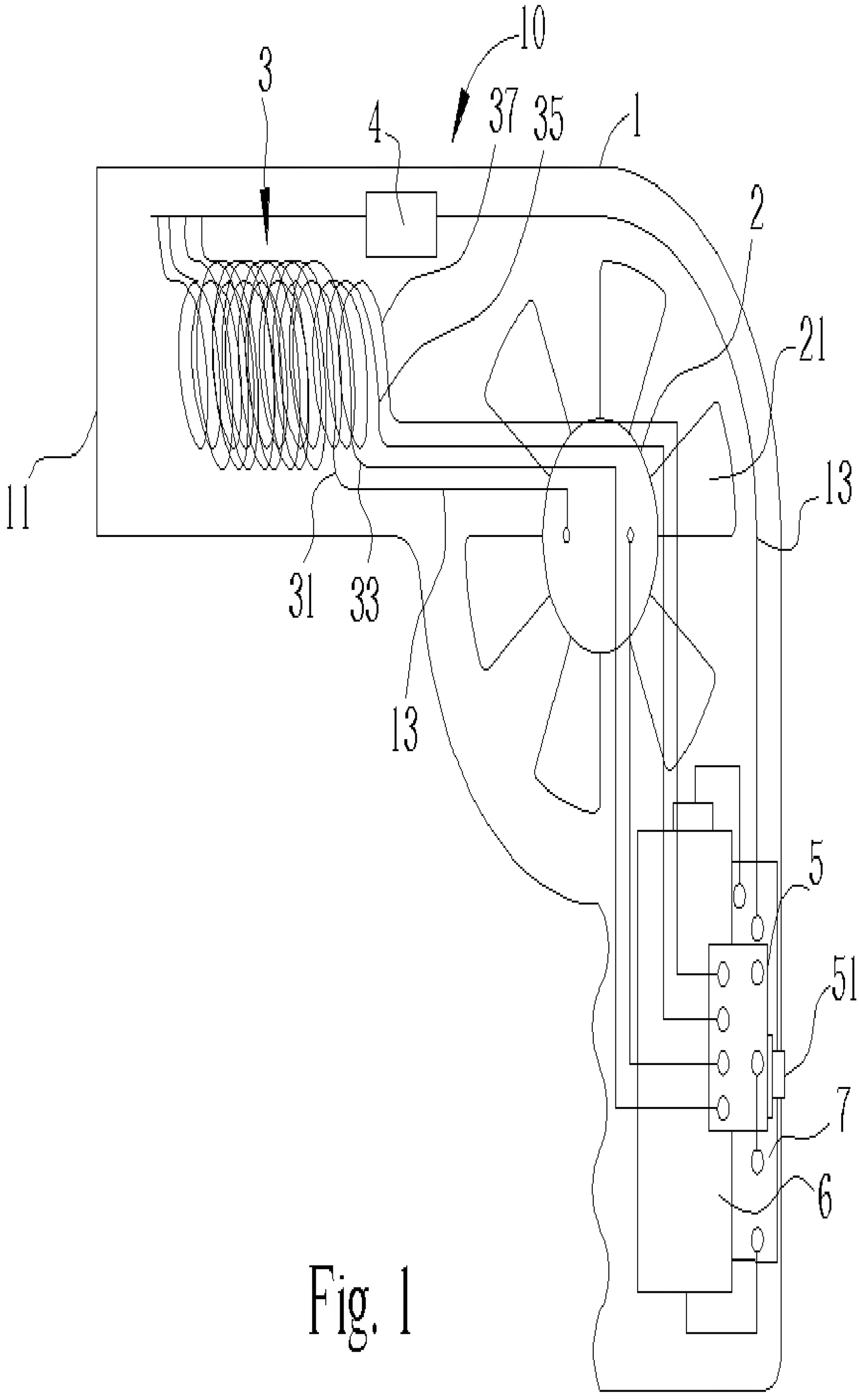

Fig. 1

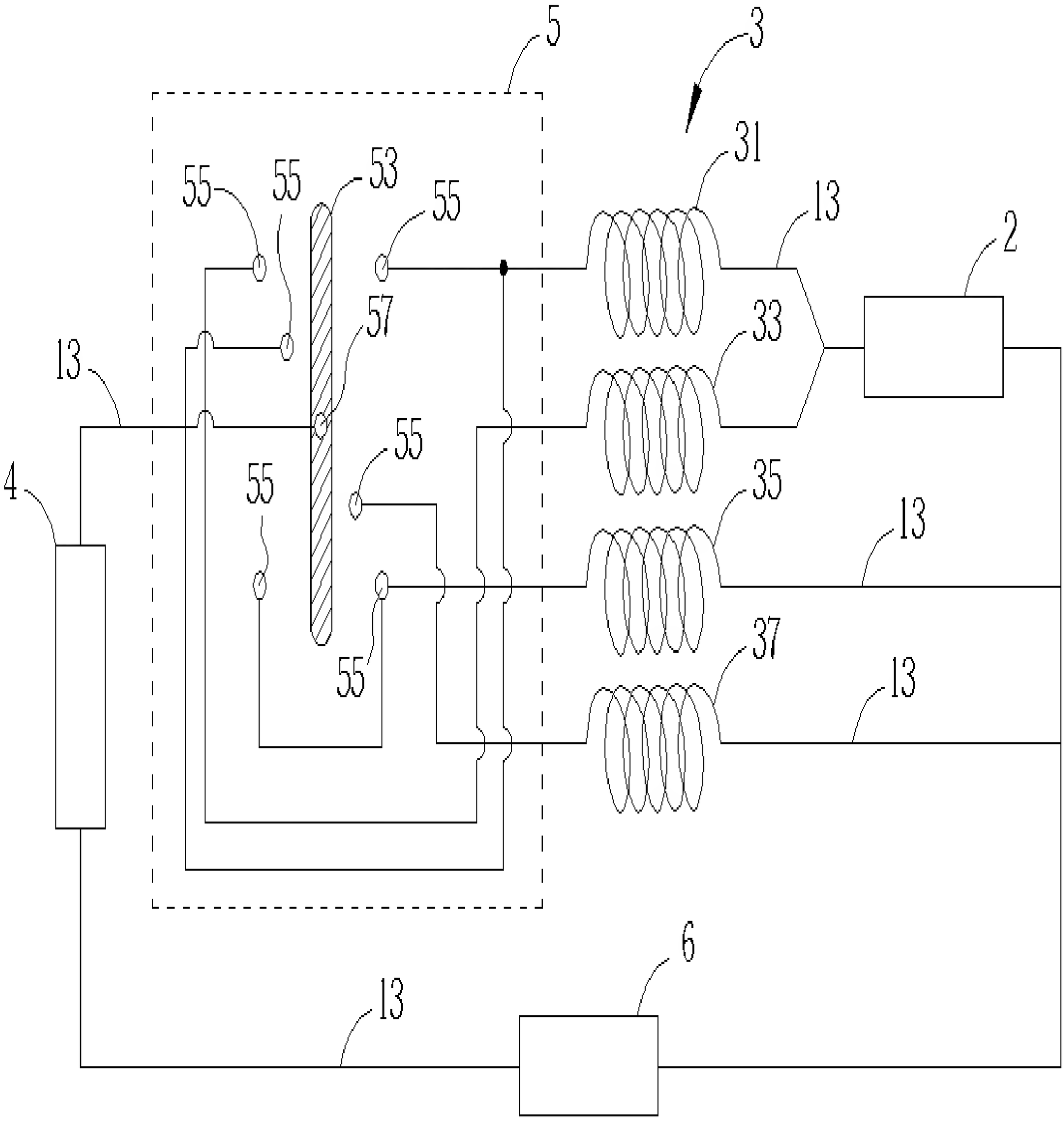

Fig. 2

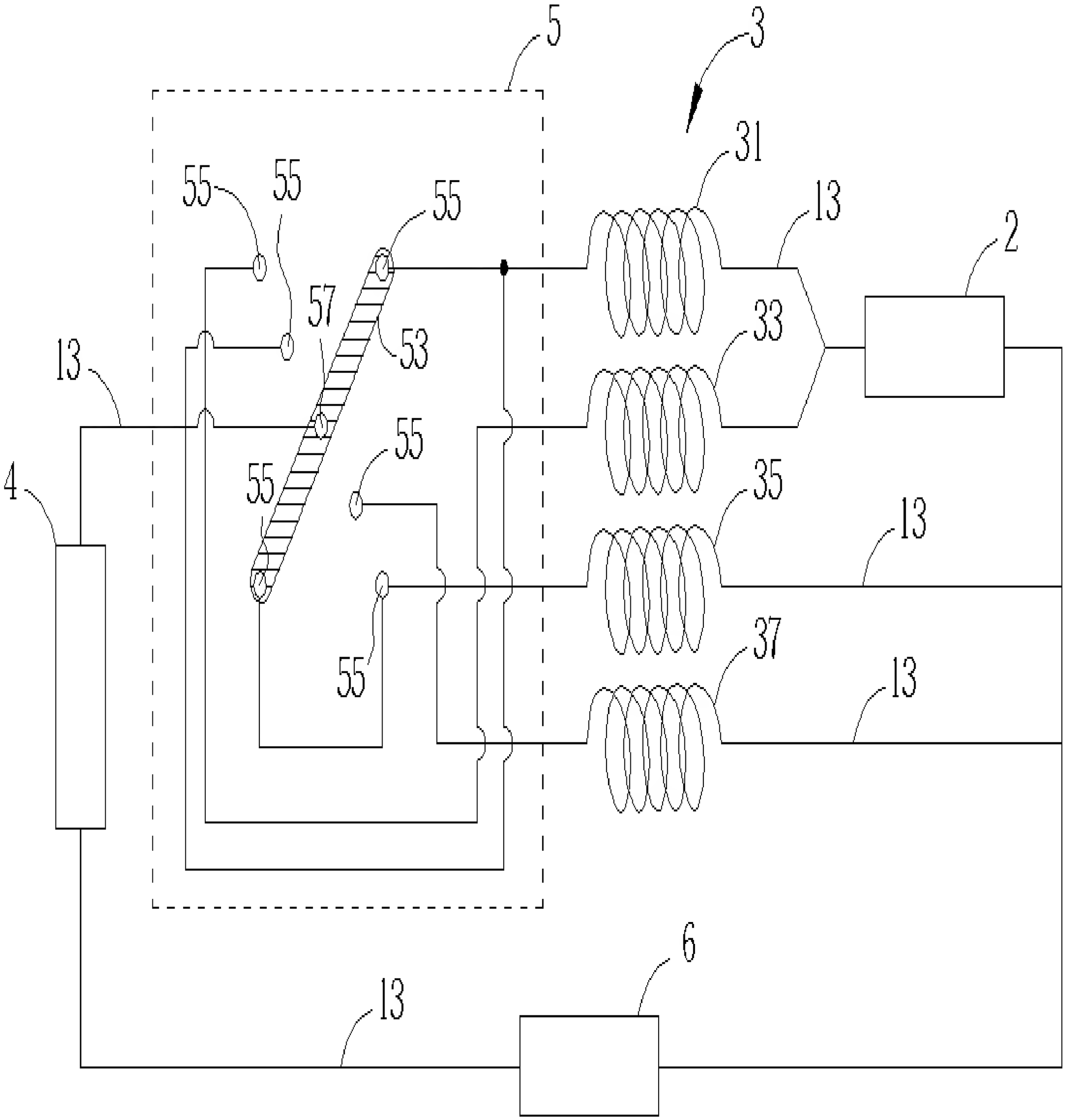

Fig. 3

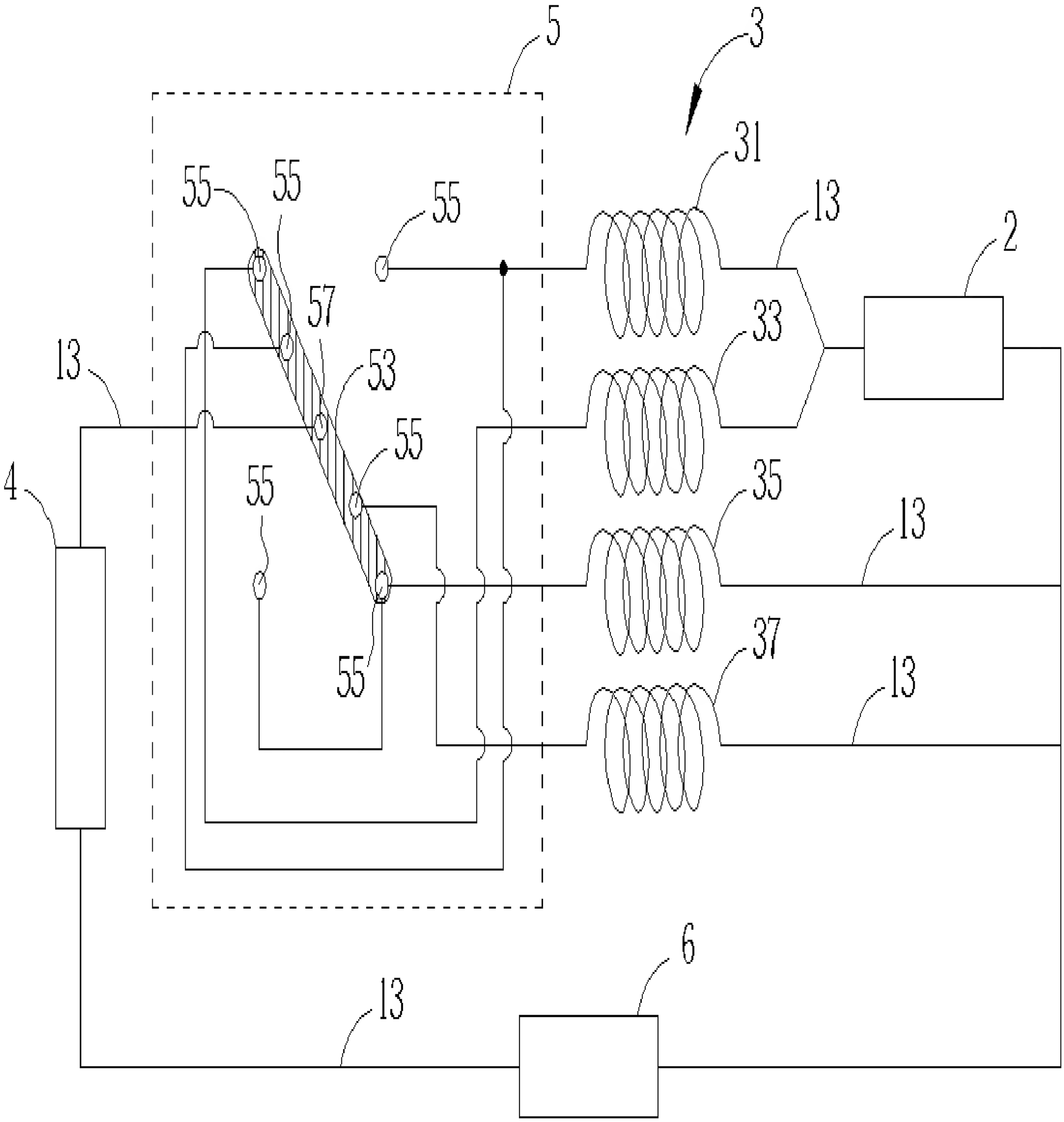

Fig. 4

Type I						
(I -1)	R_M	R_1	R_3			Total
Resistance Ω =	4.00	4.00	1.00			0.89
Current DC I =	2.00	2.00	16.00			18.00
Voltage DC V =	8.00	8.00	16.00			16.00
Power DC W =	16.00	16.00	256.00			288.00
(I -2)	R_M	R_1	R_2	R_3	R_4	Total
Resistance Ω' =	4.00	4.00	2.86	1.00	1.00	0.46
Current DC I' =	2.82	1.18	1.64	16.00	16.00	34.82
Voltage DC V' =	11.29	4.71	4.71	16.00	16.00	16.00
Power DC W' =	32.00	5.55	7.76	256.00	256.00	557.31
$W'_M / W_M = 32.00/16.00 = 2$						
$W'_{Total} / W_{Total} = 557.31/288.00 = 1.94$						

Fig. 5

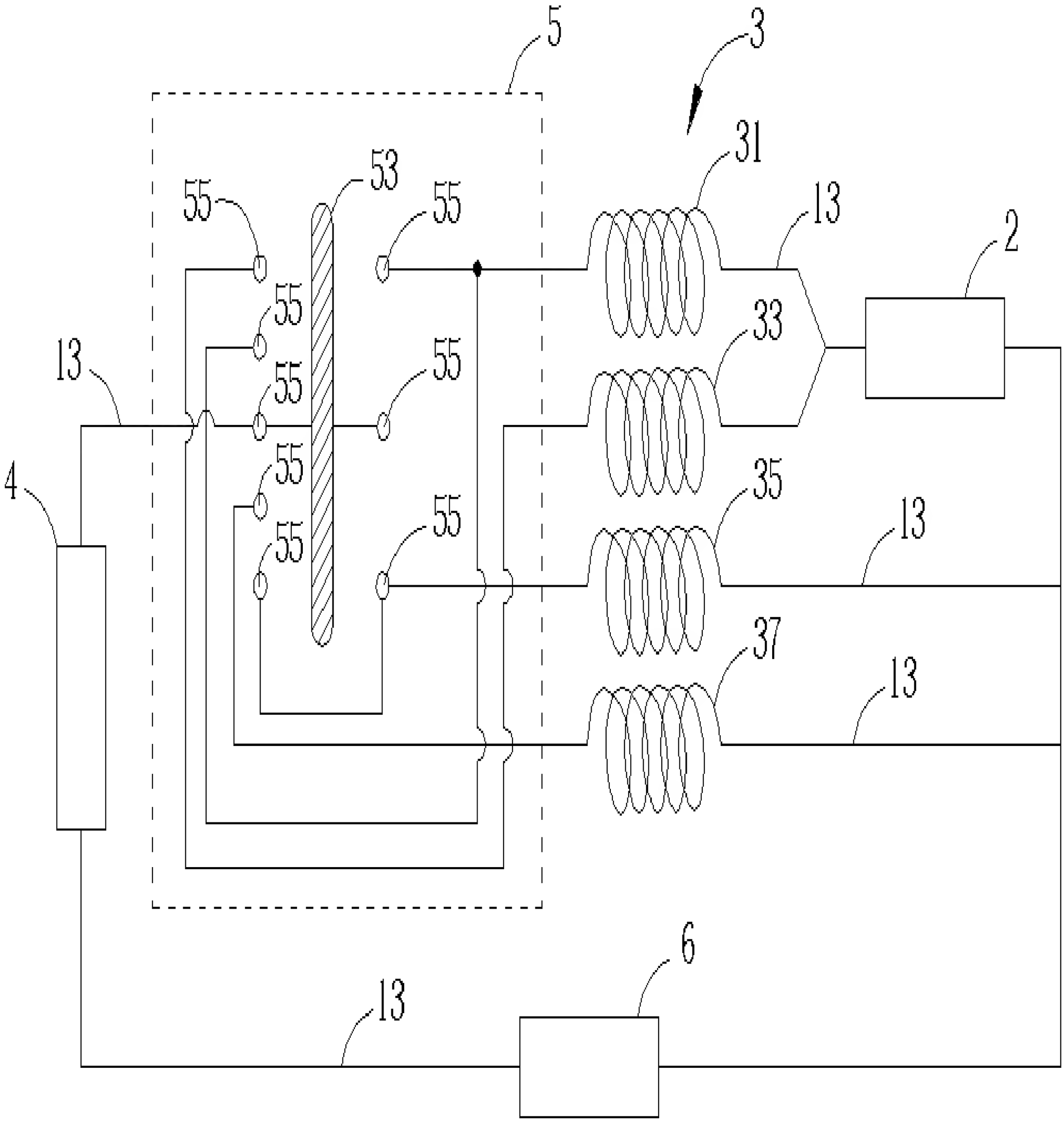

Fig. 6

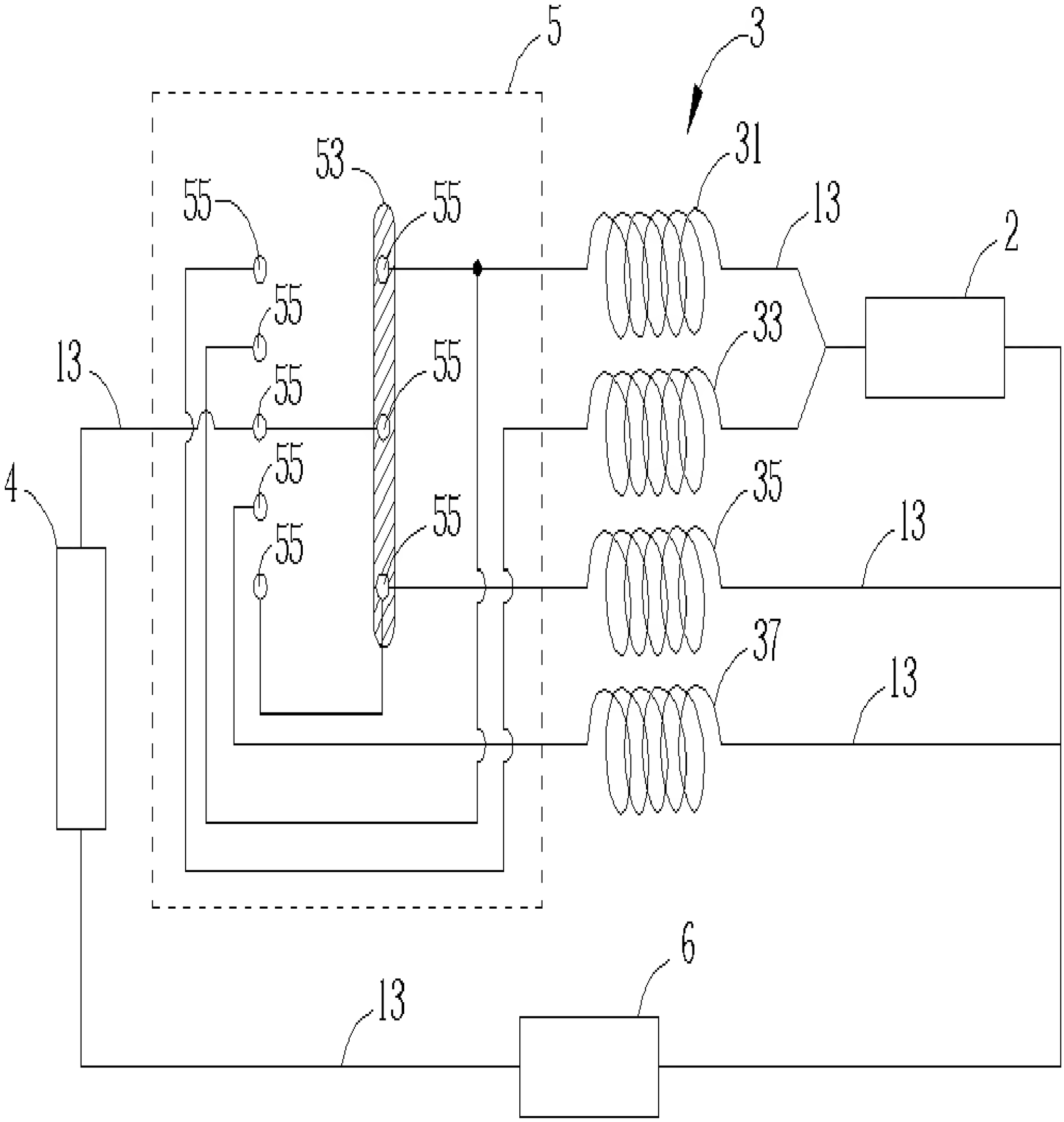

Fig. 7

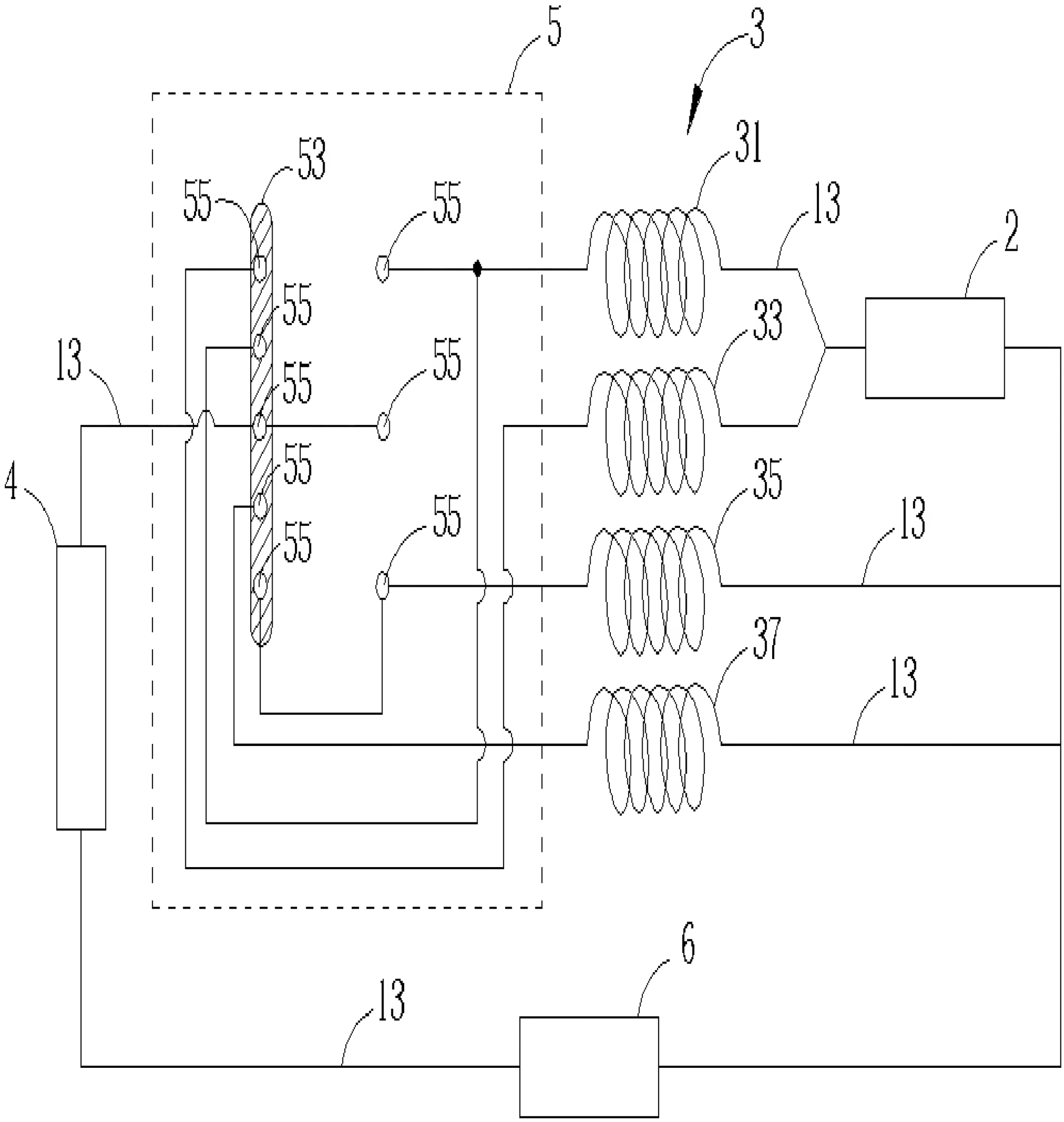

Fig. 8

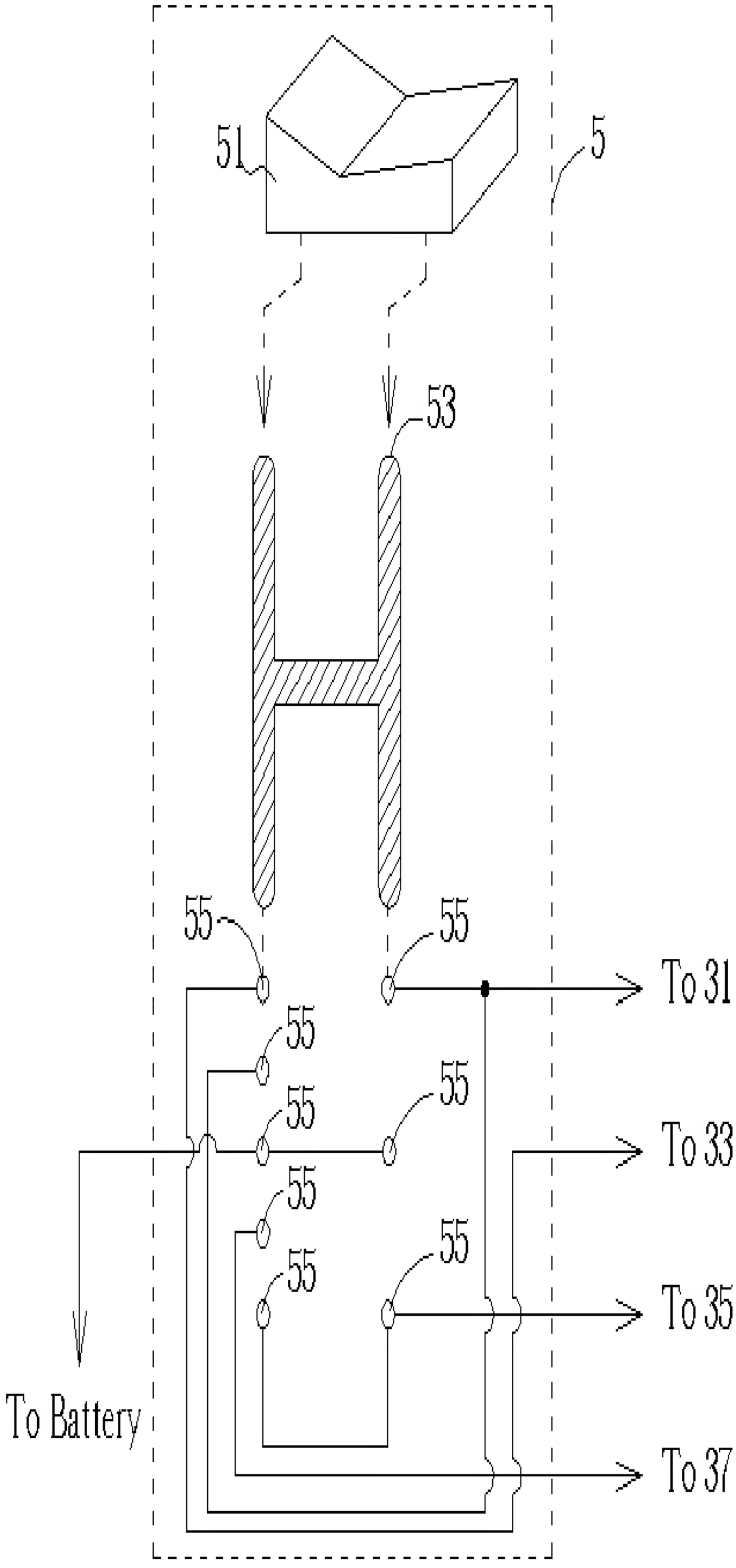

Fig. 9

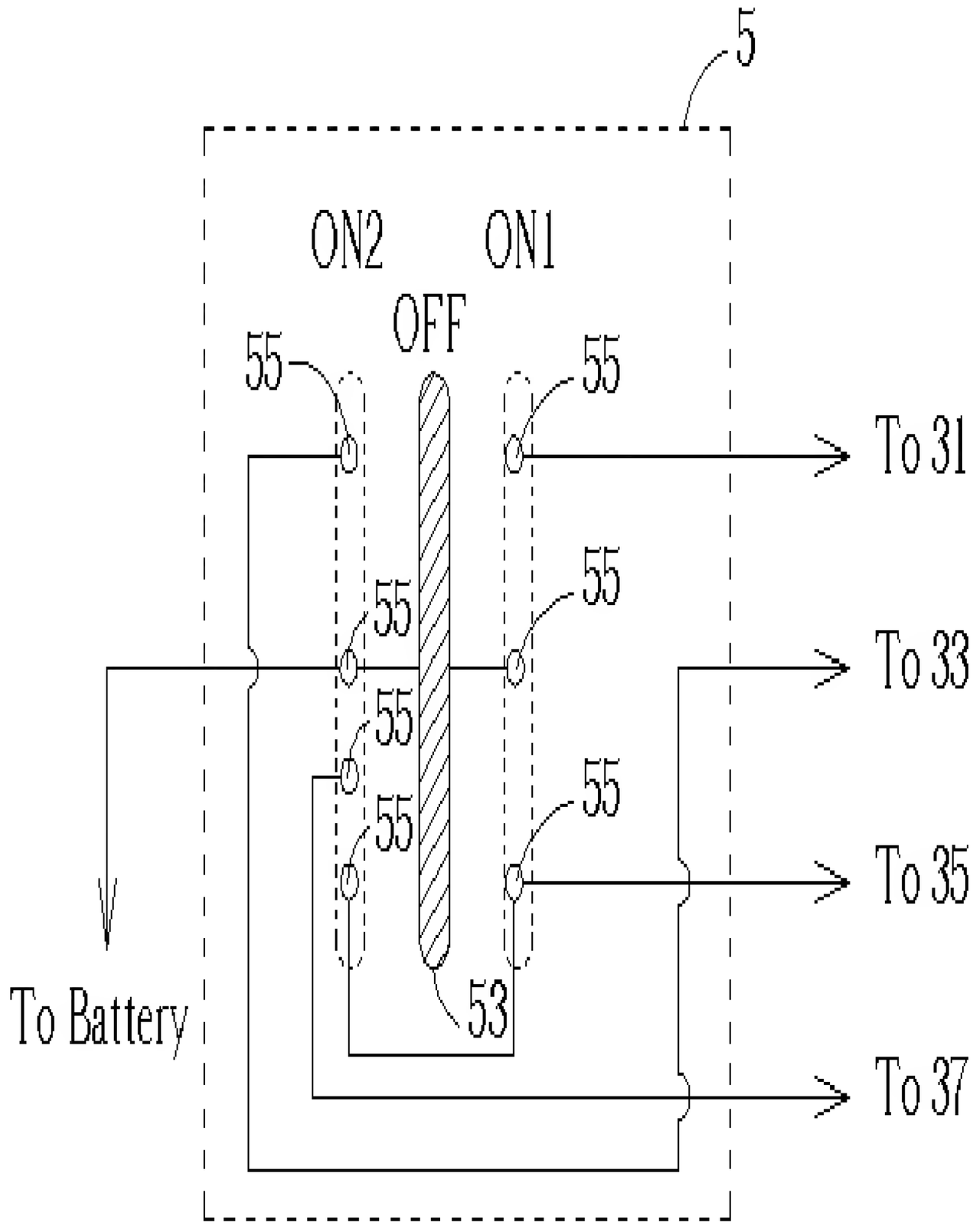
5
ON2
ON1
OFF
55
55
To 31
55
55
55
55
55
To 33
To 35
To Battery
53
To 37

Fig. 10

Type Ⅱ					
(Ⅱ-1)	R_M	R_1	R_3		Total
Resistance Ω =	4.00	4.00	1.00		0.89
Current DC I =	2.00	2.00	16.00		18.00
Voltage DC V =	8.00	8.00	16.00		16.00
Power DC W =	16.00	16.00	256.00		288.00
(Ⅱ-2)	R_M	R_2	R_3	R_4	Total
Resistance Ω' =	4.00	1.67	1.00	1.00	0.46
Current DC I' =	2.82	2.82	16.00	16.00	34.82
Voltage DC V' =	11.29	4.71	16.00	16.00	16.00
Power DC W' =	32.00	13.28	256.00	256.00	557.28
$W'_M / W_M = 32.00/16.00 = 2$					
$W'_{Total} / W_{Total} = 557.28/288.00 = 1.94$					

Fig. 11

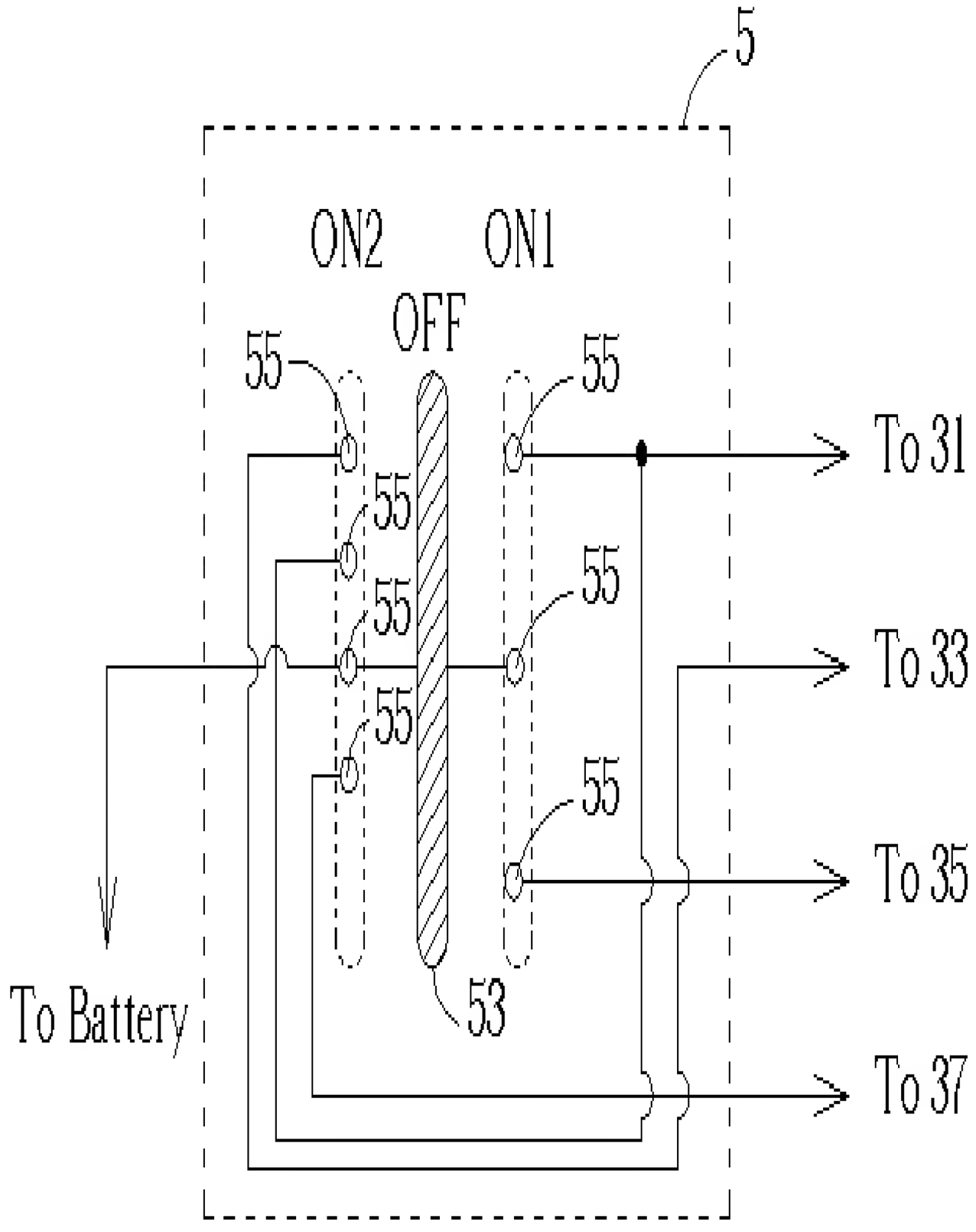
5
ON2
ON1
OFF
55
55
55
55
55
55
55
To 31
To 33
To 35
To 37
To Battery
53

Fig. 12

Type Ⅲ					
(Ⅲ-1)	R_M	R_1	R_3		Total
Resistance Ω =	4.00	4.00	1.00		0.89
Current DC I =	2.00	2.00	16.00		18.00
Voltage DC V =	8.00	8.00	16.00		16.00
Power DC W =	16.00	16.00	256.00		288.00
(Ⅲ-2)	R_M	R_1	R_2	R_4	Total
Resistance Ω' =	4.00	4.00	2.86	0.50	0.46
Current DC I' =	2.82	1.18	1.64	32.00	34.82
Voltage DC V' =	11.29	4.71	4.71	16.00	16.00
Power DC W' =	32.00	5.55	7.76	512.00	557.31
$W'_M / W_M = 32.00/16.00 = 2$ $W'_{Total} / W_{Total} = 557.31/288.00 = 1.94$					

Fig. 13

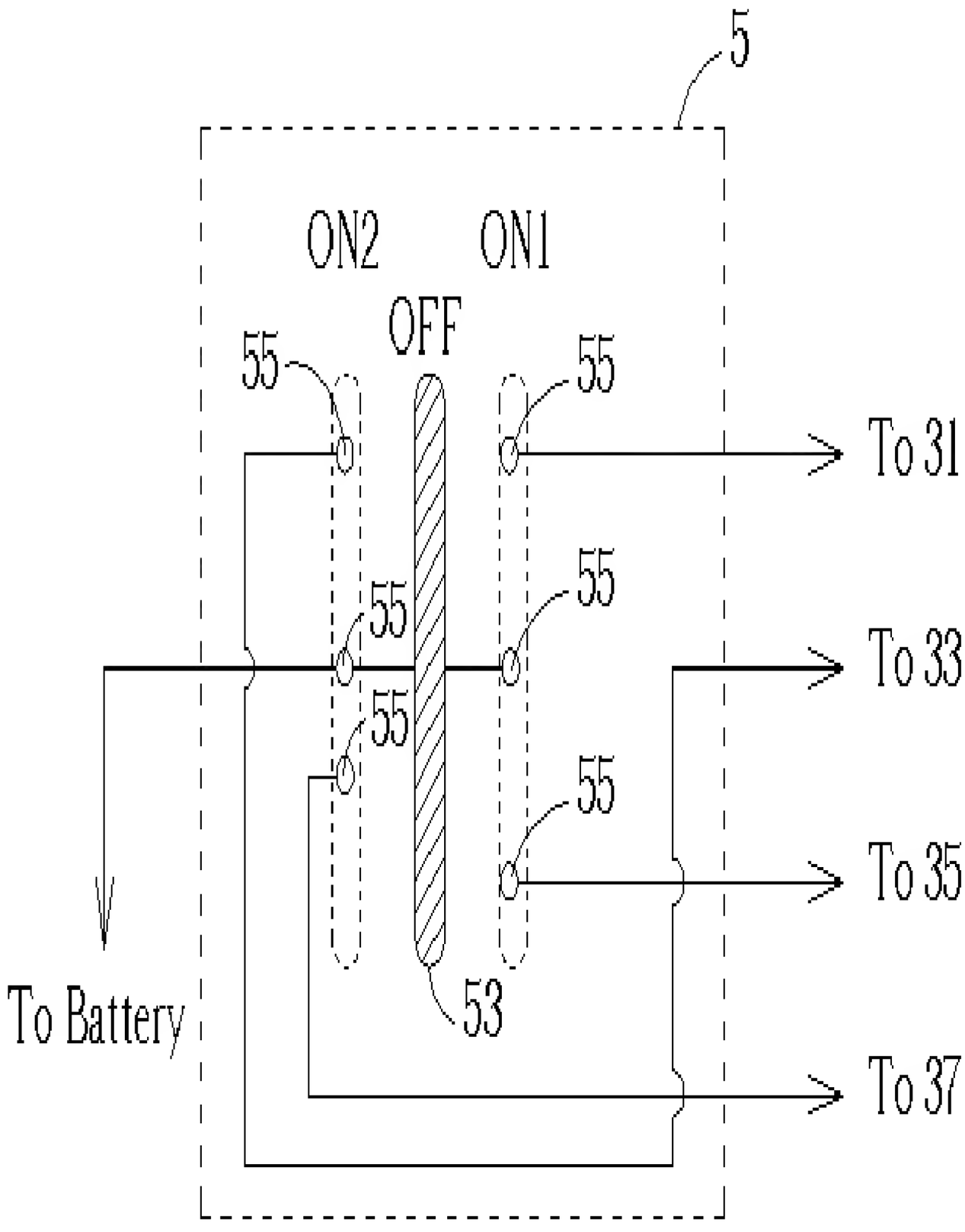

Fig. 14

Type IV				
(IV-1)	R_M	R_1	R_3	Total
Resistance Ω =	4.00	4.00	1.00	0.89
Current DC I =	2.00	2.00	16.00	18.00
Voltage DC V =	8.00	8.00	16.00	16.00
Power DC W =	16.00	16.00	256.00	288.00
(IV-2)	R_M	R_2	R_4	Total
Resistance Ω' =	4.00	1.67	0.50	0.46
Current DC I' =	2.82	2.82	32.00	34.82
Voltage DC V' =	11.29	4.71	16.00	16.00
Power DC W' =	32.00	13.28	512.00	557.28
$W'_M / W_M = 32.00/16.00 = 2$ $W'_{Total} / W_{Total} = 557.28/288.00 = 1.94$				

Fig. 15

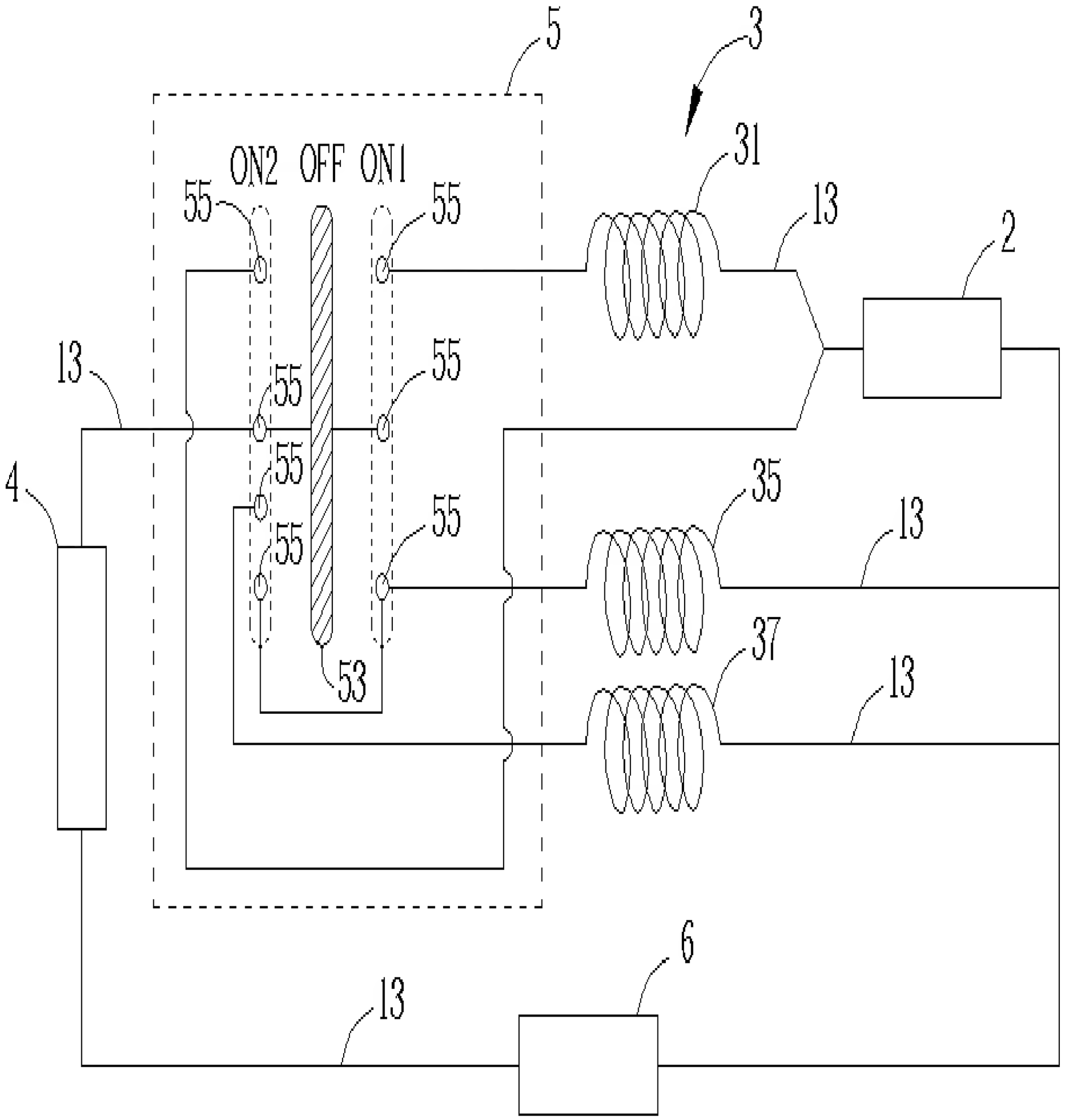

Fig. 16

Type V				
(V-1)	R_M	R_1	R_3	Total
Resistance Ω =	4.00	1.65	1.00	0.85
Current DC I =	2.83	2.83	16.00	18.83
Voltage DC V =	11.32	4.67	16.00	16.00
Power DC W =	32.00	13.22	256.00	301.20

(V-2)	R_M	R_3	R_4	Total
Resistance Ω' =	4.00	1.00	1.00	0.44
Current DC I' =	4.00	16.00	16.00	36.00
Voltage DC V' =	16.00	16.00	16.00	16.00
Power DC W' =	64.00	256.00	256.00	576.00

$W'_M / W_M = 64.00/32.00 = 2$

$W'_{Total} / W_{Total} = 576.00/301.20 = 1.91$

Fig. 17

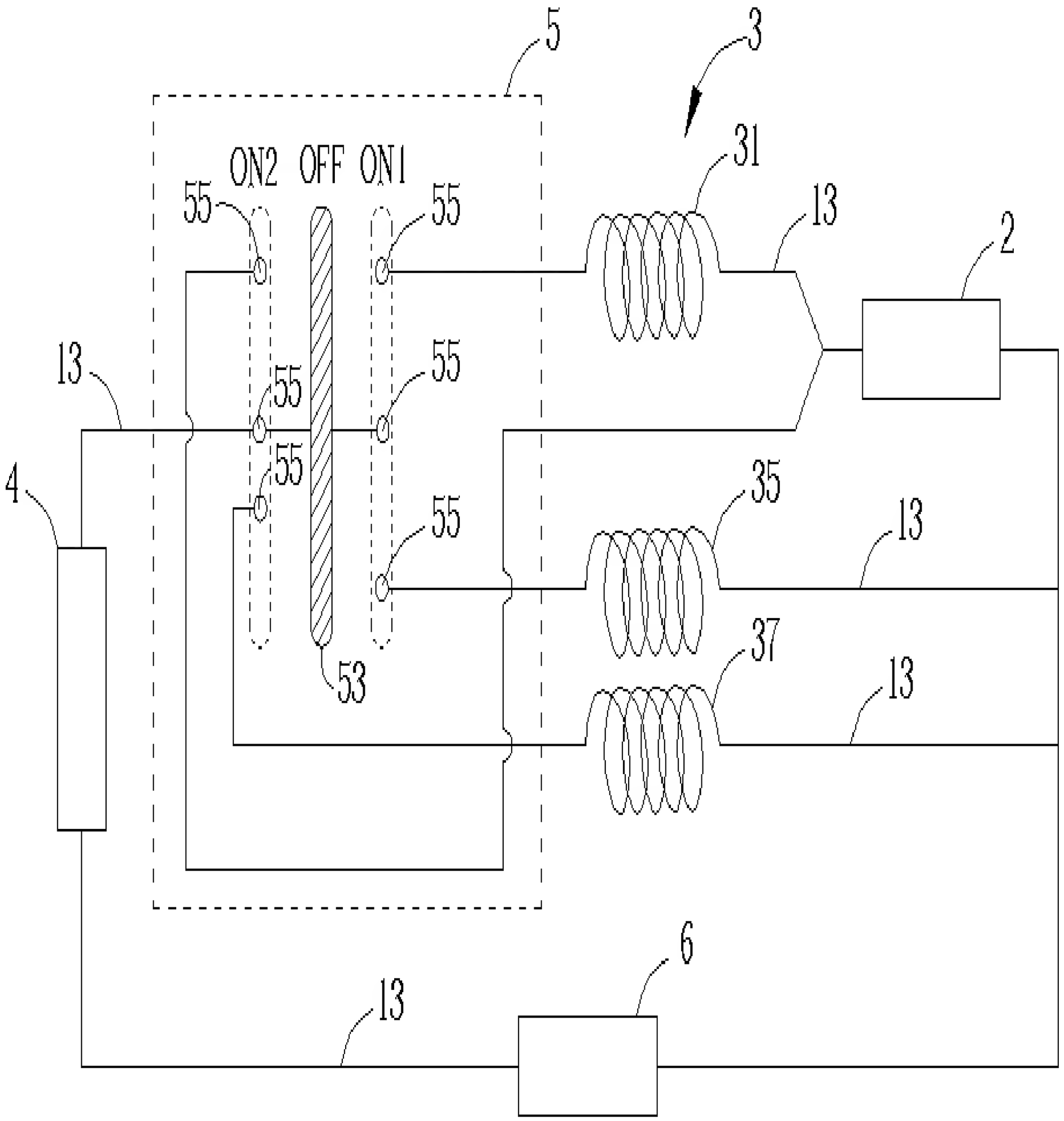

Fig. 18

Type VI

(VI-1)	R_M	R_1	R_3	Total
Resistance Ω =	4.00	1.65	1.00	0.85
Current DC I =	2.83	2.83	16.00	18.83
Voltage DC V =	11.32	4.67	16.00	16.00
Power DC W =	32.00	13.22	256.00	301.20

(VI-2)	R_M	R_4	Total
Resistance Ω' =	4.00	0.5	0.44
Current DC I' =	4.00	32	36.00
Voltage DC V' =	16.00	16.00	16.00
Power DC W' =	64.00	512.00	576.00

$W'_M / W_M = 64.00/32.00 = 2$

$W'_{Total} / W_{Total} = 576.00/301.20 = 1.91$

Fig. 19